

HEWLETT-PACKARD

HP 82713A

# Plug-In Module Simulator

OWNER'S MANUAL

For Use With the HP-75





# **HP 82713A Plug-In Module Simulator**

## **Owner's Manual**

**For Use With the HP-75**

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## Introduction

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Your HP 82713A Plug-In Module Simulator (PMS) was designed by Hewlett-Packard to help you prepare your program materials for incorporation into custom plug-in modules in support of your HP-75 portable computer.

The ROM (read-only memory) of a plug-in module is simulated by 8K or 16K bytes of RAM (random-access memory). Data can easily be written into or read from the RAM, just as it is in the HP-75 itself. Circuitry is used which retains the memory after power has been removed from the unit.

The PMS incorporates the flexibility of RAM and the memory characteristics of ROM in a single, easy-to-use package.

With the simulator you can accomplish the following:

- o Since computer memory is not required, you can conduct realistic performance tests of your programs.
- o You can field test your programs.
- o You can verify absolutely the function and fit of your software within the plug-in module.
- o You can compare the performance of a program in the plug-in module to the performance of the same program in the computer.
- o You can temporarily store files and programs.

If you are concerned with "semifixed" programs that require periodic updating, the PMS will be particularly useful to you. Suppose, for example, you are an accountant; each year you need to use the latest tax table in your software. Just read the current data into your simulator, and use it as a plug-in module. Doing this saves you the cost and time required to obtain a permanent module.

You need to have an HP-75 portable computer and to understand the HP-75 keyboard and programming techniques in order to operate the PMS.

Only two pieces of equipment and the associated software are needed to operate your PMS; the simulator itself (which includes a built-in cable and connector), an HP-75 portable computer, and the system commands recorded on magnetic cards.

After you have studied this manual you will know how to connect the PMS to your HP-75 computer and how to turn it on and off. You will know the specific commands that enable you to write programs into the simulator. You will understand how the continuous memory works and what you must do to maintain it. And you will know the warranty and repair provisions which cover the PMS and how to make use of them should the need arise.

## Operation

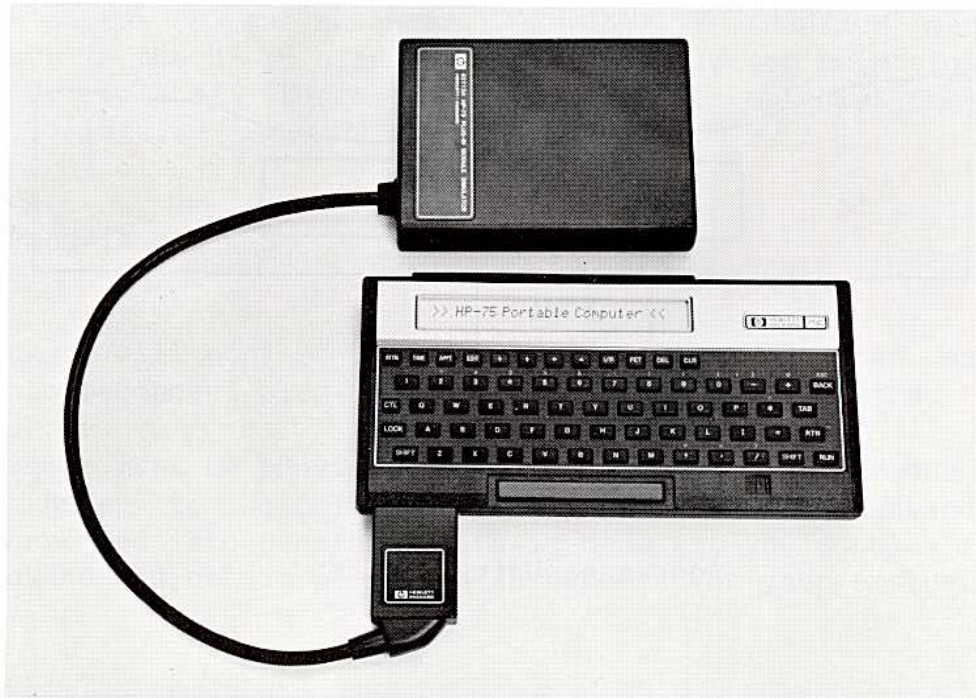
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### GETTING STARTED

#### CAUTION

Be sure to turn the HP-75 off before plugging anything into an external port. Failure to do so may damage the computer or the plug-in unit.

To assemble a simulator system, you need only to plug the connector on the end of the cable into any one of the three external ports on the front edge of your HP-75.



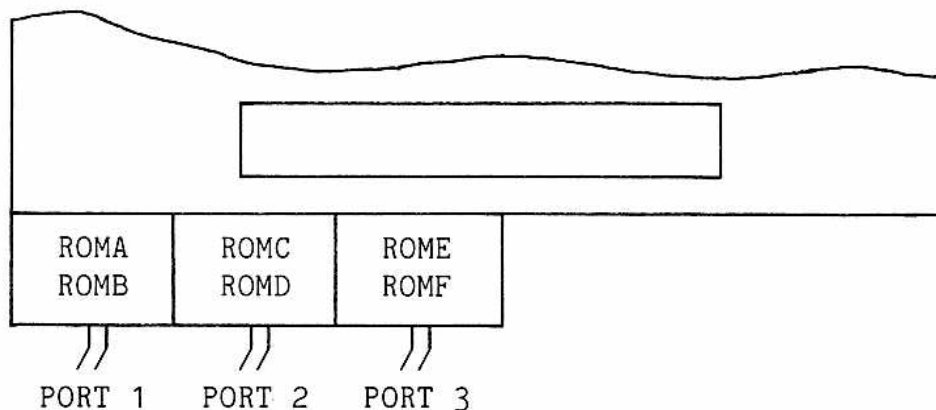
The HP 82713A Plug-In Module Simulator System

Up to three simulators may be plugged into the external ports at the same time. If only one or two simulators are used, they may be plugged into any of the ports in any order.

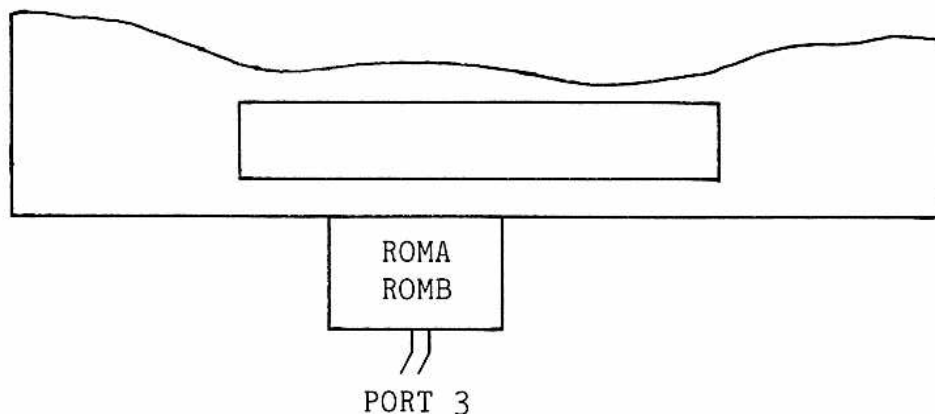


## PMS ADDRESSES

A PMS consists of two banks of RAM, each of which contains 8K bytes of memory. Each bank can be accessed independently. A permanent plug-in module can contain up to two full PMS banks. The address of a particular PMS bank depends upon the port into which the PMS is plugged. The ports are searched in sequence from left to right. The two banks of the first PMS found will be designated as ROMA and ROMB.



Addresses Using Three PMS's



Addresses Using One PMS

## HOW TO TURN THE PMS ON AND OFF

Operating power for the PMS is obtained from the HP-75. Therefore, to turn the simulator on and off you need only to turn the HP-75 on and off. Prior to removing the PMS (or a permanent plug-in module), execute the CLEAR VARS command to insure that the HP-75 will not expect the plug-in unit to be present when it is turned on again.



## CONTINUOUS MEMORY

Programs that you write and record in the PMS remain there until you purposely remove them. The continuous memory of the PMS saves the programs, even after operating power is removed. The battery, which provides the continuous memory, is wired into the PMS. Although it is not rechargeable, it should give you several years of carefree use.

Note: The PMS simulates a ROM and will retain its memory for long periods of time. It should be remembered, however, that the contents of the PMS will be lost before you receive the first warning that the battery is no longer maintaining the memory. It is advisable to back up your programs frequently on a secondary storage medium, such as a mag card, or in the HP-75 itself.

If you turn on the PMS and an error 232--INVALID CHECKSUM message immediately appears in the HP-75 display, the battery is not maintaining the memory and should be replaced. (Refer to appendix B.) All material previously stored in the PMS is lost.

## PERMANENT PLUG-IN MODULES

Hewlett-Packard will convert the programs you have developed and stored in your PMS into permanent plug-in modules, should you so desire.

A ROM ID number must be provided at initialization of a PMS bank to identify the unit. (Refer to the BUILD command, page 12.) If you intend to have your programs converted into permanent plug-in modules, you should first contact Hewlett-Packard and obtain permanent ID numbers for your exclusive use.

## GENERAL OPERATING PROCEDURE

The simple operating procedure for the PMS is outlined below. The commands are described in detail later. (Throughout the rest of this manual, the word "program" will be used in the singular. It should be understood, however, that multiple programs may be used so long as they do not exceed available space limitations.)

To operate the PMS:

1. Load the PMS commands into your HP-75. Do this by reading the magnetic cards supplied with the PMS. This needs to be done only once so long as the HP-75 memory is maintained.
2. Turn the HP-75 off, plug the PMS into a port in the HP-75, then turn the HP-75 on again.
3. Execute BUILD to initialize the desired memory bank and to set the ROM ID.
4. Write, or copy, your program into the HP-75.
- \* 5. Execute ROMSIZE to determine the size of the program in the HP-75 you wish to copy into the PMS.
- \* 6. Execute ROMAVAIL to determine the availability of sufficient room in the PMS for your program.
7. Execute COPY to read your program into the PMS.

Note: It is possible to assign the same name to your program in the PMS as that of the same program in the HP-75. If you do so, and you run the program, the HP-75 will run the program in its own memory and will ignore the program in the PMS.

8. To edit your program, read it back into the HP-75 using the COPY command, make your changes, and return it to the PMS.
9. Repeat the above steps, as required, until you have loaded a maximum of eight programs and files plus one LEX file into your PMS bank.
- \*10. Mark files PRIVATE, as desired.

At any time during the above process, your program can be tested by running it just as you run any program in the HP-75 using a plug-in module.

After you have developed and fully tested your program in the PMS and are satisfied with the results, you may elect to have Hewlett-Packard create your permanent plug-in module. You should contact Hewlett-Packard for further information on how to proceed.

Refer to appendix E for the operational limitations on the use of the PMS and permanent plug-in modules.

---

\* Optional step.



Refer to appendix A for a detailed example of the PMS in use.

## SYSTEM COMMANDS

The commands used by the PMS are summarized in the Command Index inside the back cover. With the exception of the CAT, the two COPY, and the PURGE commands, they are unique to the PMS.

Note: Since all of the PMS commands are programmable, it is possible to include them inadvertently in a PMS file. Therefore, the PMS command file should be purged from the HP-75 prior to final verification of a module to ensure that the PMS programs are not dependent upon the commands.

## COMMAND DESCRIPTIONS

The PMS commands are described below, together with examples of their use, and lists of relevant error messages. Error messages with numbers less than 100 are identical to the HP-75 error messages. (Refer to your HP-75 owner's manual for further information.) Error messages with numbers greater than 100 are unique to the PMS.

The error listings show the errors commonly associated with the command. They are not exhaustive; other applicable HP-75 error messages may also be displayed. (Refer to appendix C for details of the error messages.)

All commands listed are programmable.

Syntax Summary: (Refer to appendix D for further details.)

[ ] -- indicates use is optional.

filename - a parameter which may be any HP-75-compatible file name.

lexname - a parameter which contains the name of a language extension file.

device - a parameter which may be any one of six PMS bank addresses, ROMA,...ROMF.

romid - a parameter which contains a numeric expression which identifies a bank in the PMS.

All string expressions and commands may be either upper- or lowercase, and may be delimited by single or double quotes as long as they match.

BUILD ':device', romid [, 'lexname']

CAT '[filename]:device'

CHECKSUM (':device')

COPY ['filename'] TO '[filename]:device'

COPY 'ALL:device' TO 'filename'

PRIVATE 'filename:device'

PURGE 'filename:device'

ROMAVAIL (':device')

ROMID (':device')

ROMSIZE ('filename')

Initializing a Bank (BUILD)

BUILD ':device', romid [, 'lexname']

This command initializes the designated PMS bank. All information previously recorded in the bank is erased, and a catalog directory is created.

A ROM ID must be specified at this time. This number is used by the HP-75 uniquely to identify each bank within a plug-in module. It may be any number in the range -32767 through -257 and +3 through +32767 inclusive. However, while developing your module, you should use only those numbers in the range 100 to 199 to avoid possible confusion with any permanent plug-in modules you may be using. No two PMS banks should be assigned the same ROM ID number. If the number assigned is already present, an error will be reported.

Note: The use of duplicate ROM ID numbers  
could cause serious operating problems,  
such as the loss of all files.

Any single language extension (LEX) file compatible with the HP-75 standard may be optionally specified for inclusion in a bank at initialization. A LEX file can be removed from a bank only by the use of this command. Refer to your HP-75 owner's manual for a further discussion of LEX files.

After you have copied a LEX file into the PMS, you must purge it from the HP-75 before typing in the BASIC program which uses it. Otherwise, the program may use the incorrect LEX file.

Examples:

BUILD ':roma', 100

Initializes bank A and assigns it the ID number 100.



```
BUILD ':ROMF', 101, 'Lex'
```

Initializes bank F, assigns it the ID number 101, and copies the language extension file Lex into it.

```
110 BUILD':romb', 110
```

Initializes bank B in a program and assigns it the ID number 110.

#### Errors:

{device not present}

{file active}

{file not found}

{invalid checksum}

{invalid file}

{invalid filespec}

{wrong file type}

{duplicate romid}

#### Listing Files (CAT)

```
CAT '[filename]:device'
```

A CAT command lists individual files or all the files within a PMS bank. The file name, type, byte length, and time and date of entry are displayed in the HP-75.

#### Examples:

```
CAT 'TANK:roma'
```

Lists the file TANK in pms bank A.

```
CAT ':ROMB'
```

Lists all files in PMS bank B.

```
100 A$='TANK:romf'
```

Assigns string variable.

```
110 CAT A$
```

Displays files in bank F during the running of the program.

#### Errors:

{bank not initialized}

{device not present}

{invalid filespec}

{file not found}

#### Error Check (CHECKSUM)

```
CHECKSUM (':device')
```

A CHECKSUM command will return the checksum byte required to produce a checksum of 255 in the designated bank.

If this checksum does not match the checksum stored in the bank after a write operation, a 232 error--INVALID CHECKSUM is displayed. This indicates an error in the HP-75 or in the bank. In no way can the bank then be accessed except by using the BUILD command.

#### Examples:

```
CHECKSUM (":ROMC")
```

Displays checksum for bank C.

```
100 R$=":roma"
```

Assigns string variable.

```
200 V=CHECKSUM (R$)
```

Assigns the checksum for bank A to V in a program.

```
210 DISP'Checksum is';V
```

Displays checksum during the running of the program.

#### Errors:

{bank not initialized}

{device not present}

{invalid checksum}

{bad parameter}

#### Transferring Files (COPY)

There are three categories of this command:

- o Transferring files from the HP-75 to the PMS.
- o Transferring individual files from the PMS to the HP-75.
- o Transferring a complete bank from the PMS to the HP-75.

#### Transferring Files From the HP-75 to the PMS.

COPY ['filename'] TO '[filename]:device'

This command will copy a specified file from the HP-75 memory into the PMS. If the destination file name is not specified, the source file name will be used. If the source file name is not specified, the current edit file will be copied. At least one of the files, however, must be named. (If a program in the HP-75 has the same name as a program in the PMS, only the program in the HP-75 can be run.) A bank must be empty before a ROM file is copied into it. If a ROM file is copied into a bank, the ID number of the ROM file will become the bank ROMID number. You may copy a maximum of eight files plus one LEX file into a bank.

#### Examples:

COPY 'TEST' TO 'T1:ROMA'

Copies Test file from the HP-75 to bank A and renames it T1.

COPY 'R1' TO ':romd'

Copies R1 file from the HP-75 to bank D under the same name.

```
100 A$="Prog1"
```

Assigns string variable.

```
110 B$=':roma'
```

Assigns string variable.

```
120 COPY A$ to B$
```

Copies Prog1 file from the HP-75 to bank A under the same name.

Transferring Individual Files From the PMS to the HP-75.

```
COPY 'filename' TO 'filename'
```

This command will copy a specified file from a PMS bank to the HP-75. It is the same as the HP-75 COPY command. No device specifier is required, since the HP-75 will determine where the file is located so long as the file name is used in only one bank.

Example:

```
COPY 'T1' TO 'Test1'
```

Copies file T1 from a PMS bank to the HP-75 and renames it Test1.

Transferring A Complete Bank From the PMS to the HP-75.

```
COPY 'ALL:device' TO 'filename'
```

This command will copy the complete set of files in a particular PMS bank to the HP-75 and designate them as a single ROM file.

Example:

```
COPY'all:romf' TO 'End'
```

Copies all the files in bank F to the HP-75 as a single ROM file and names it End.



A ROM file can only be copied or purged; it can not be edited. If you wish to edit a ROM file, you must first copy it into an initialized PMS bank and then copy the individual file you wish to edit back into the HP-75, edit it and return it to the PMS bank, and recopy it into the HP-75 as a ROM file.

A ROM file can not be copied into a partially filled PMS bank. The bank can be initialized by executing the BUILD command.

The file named may be of any type compatible with the HP-75. However, the COPY command is subject to the following restrictions:

- o Language extension (LEX) file: Only one LEX file may be stored in a PMS bank (Refer to the BUILD command.)
- o BASIC file: A file pointer is allocated and added to the file. Therefore, the file size listed by the CAT command may be too small to use in determining the required bank memory. (Refer to the ROMSIZE command.)

Any single language extension (LEX) file compatible with the HP-75 standard may be optionally specified for inclusion in a bank at initialization.

Errors when copying into the PMS:

{device not present}	{device not allowed}
{bank not initialized}	{duplicate name}
{bank not empty}	{file not found}
{bank full}	{invalid file}
{invalid checksum}	{invalid filespec}
{wrong file type}	{duplicate romid}

## Errors when copying into the HP-75:

{device not present}	{device not allowed}
{bank not initialized}	{duplicate name}
{invalid filespec}	{not enough memory}
{invalid checksum}	{file not found}

## File Security (PRIVATE)

PRIVATE 'filename:device'

This command will mark the specified file within the PMS as private. All files can be made private. A private file can be run or purged but can be copied only when the complete contents of the bank are transferred to the HP-75. A private file can not be listed or edited since it can not be returned to the HP-75.

## Examples:

PRIVATE 'MYFILE:ROMA'

Marks Myfile in bank A as private.

100 A\$="T1:romb"

Assigns a string variable.

110 Private A\$

Marks T1 in bank B as private in the program.

## Errors:

{bank not initialized}  
{device not present}  
{file not found}  
{invalid checksum}  
{invalid filespec}

## Erasing a File (PURGE)

```
PURGE 'filename:device'
```

This command will remove the specified file from the PMS. It is not reversible. A LEX file can not be purged.

### Example:

```
PURGE 'T1:ROMA'
```

Removes T1 from bank A.

### Errors:

{bank not initialized}

{device not present}

{file active}

{file not found}

{invalid checksum}

{invalid filespec}

{wrong file type}

## Bank Memory Availability (ROMAVAIL)

```
ROMAVAIL (':device')
```

This command will return the decimal number of unused bytes of memory available in the specified PMS bank.

### Examples:

```
ROMAVAIL (':romd')
```

Returns the number of available bytes of memory in bank D.

```
100 A$=':roma'
```

Assigns a string variable.

```
110 ROMAVAIL (A$)
```

Displays the number of available bytes of memory in bank A during the running of the program.

Errors:

{bank not initialized}

{device not present}

{bad parameter}

Bank Identification (ROMID)

```
ROMID (':device')
```

This command will return the decimal bank identification number which was assigned at initialization. It is used primarily to verify the identity of a PMS bank.

Examples:

```
ROMID (":romb")
```

Returns the ID number of bank B.

```
5 IF ROMID(':ROMC')=100 THEN BEEP
```

The command used in a program.

Errors:

{bank not initialized}

{device not present}

{bad parameter}



## File Memory Requirement (ROMSIZE)

```
ROMSIZE ('filename')
```

This command will return the decimal number of bytes of memory required to store the specified file in any PMS bank. All file types are allowed.

### Examples:

```
ROMSIZE ('TEST')
```

Returns the number of bytes of memory required to store file TEST.

```
10 A$='TEST'@B$=':ROMC'  
20 s=romavail(B$)-romsize(a$)  
30 If s>=0 then disp s
```

Assigns string variables.

### Errors:

{file not found}

{bad parameter}

{invalid filespec}

## KEY REDEFINITION

If you wish to use a key-redefinition file in your PMS, you must name it something other than "keys". When you wish to use the file to redefine your keys, you must copy it into the HP-75 and then rename it "keys". Be sure to keep this in mind when redefining the keys in a program.

## Appendix A

### Using the PMS

---

The following steps and programs demonstrate the PMS in use.

COPY CARD TO 'PMS'

Read the PMS commands into the HP-75 by reading the two magnetic cards supplied with your PMS. This need be done only once as long as the HP-75 memory is maintained.

Edit 'Tank'

```
10 Input 'Radius in feet?'; R
20 Input 'Hieght in feet?'; H
30 V=pi*R*R*H
40 Disp 'Volume is';V;'cubic feet.'
```

This is the program you wish to put in your PMS.

Edit 'Xfer'

This is a utility program which you may enter and store in your HP-75.

```
10 Input 'Name of File?'; A$
20 Input 'PMS Bank,:romA,:romB,:romC
    :romD,:romE,:romF?'; B$
30 Input 'ROM ID#?'; a
40 BUILD B$, a
```

Input file name, for example, "Tank".

Input PMS bank, for example, :romB. This can be only romA or romB if you have only one PMS. Each PMS contains two banks.

For your own use prior to making a permanent plug-in module, this may be any number from 100 to 199, for example, 101.

This initializes bank B and assigns it the ID number 101. This identifies the bank.

50 c = ROMAVAIL(b\$) - ROMSIZE(A\$)

This computes the difference between the number of bytes of memory available in bank B and the number bytes in the program Tank. (c will be smaller than that which you would obtain using the file length from the CAT command.)

60 If c<0 then 120

70 Disp 'Remaining memory =';c;'bytes'

80 Input 'New program name?'; d\$

This is the new program name, for example, Vol.

90 Copy A\$ to d\$&B\$

This renames the Tank program Vol and copies it into bank B. The program should have different names in the HP-75 and the PMS or confusion will result when you attempt to run it.

100 Disp A\$;'is transferred to bank';B\$ The program is now resident in the PMS under the name Vol.

110 End

120 Disp 'The bank memory is too small  
by';-c;'bytes.'

This procedure may be repeated until the PMS bank is full.

You now wish to convert your file to a ROM file.

Copy 'all:romb' to 'Volume'

This copies the entire contents of the B bank into the HP-75 where it is named Volume. It is now designated a ROM file which means it can not be edited; only copied or purged.

You now notice the misspelling in line 20 of your program.

If you have not already purged bank B, you may copy the Vol file back into the HP-75, make your corrections, and return the file to bank B. Then purge the Volume ROM file from the HP-75 and copy in a new Volume ROM file from bank B.

If you have already purged bank B, proceed as follows:

Purge bank A of all files if no other empty bank is available.



Copy 'Volume' to ':roma'

A ROM file can not be copied into a partially filled bank, even though there is enough room for it.

Copy 'Vol' to 'Vol'

The individual file you wish to edit is read back into the HP-75, and you make your corrections.

Purge 'Vol:roma'

This removes the original Vol file from bank A.

Copy 'Vol' to 'Vol:roma'

This returns your corrected Vol file to bank A.

Private 'Vol:roma'

This marks your Vol file as private. Only individual files can be privatized. Do not perform this step until you are certain your file is correct for a private file can not be accessed in any way.

Purge 'Volume'

This removes the original ROM file from the HP-75.

Copy 'all:roma' to 'Volume'

This copies a new Volume ROM file into the HP-75.

If you wish to have your ROM converted to a permanent plug-in module, you must first obtain a permanent ROM ID number from Hewlett-Packard. Then you must reconstruct your ROM. This is necessary, because it is not possible to change the ROM ID number once a bank has been initialized. (If you used a permanent ROM ID number during your ROM-development process, this step will not be necessary.)

To reconstruct your ROM, first copy it into an empty PMS bank. Then copy the individual files back into the HP-75 and empty the PMS bank by using either the PURGE or BUILD command. Using the BUILD command and your permanent ID number, initialize the bank and then reconstruct the ROM in the empty bank by transferring your files back into it. Copy the entire bank into the HP-75 as a ROM file.

Then follow the instructions you received from Hewlett-Packard for sending in your file for conversion into a permanent plug-in module.



## Appendix B

### Owner's Information

---

#### HOW TO REPLACE THE BATTERY

When your battery needs to be replaced (refer to Continuous Memory, page 9), contact your service center for information on how to proceed. (Refer to Service, page 29.)

#### CAUTION

Do not try to replace the battery yourself. If you open the case, your PMS can be destroyed or seriously damaged.

#### SPECIFICATIONS

##### Temperature Limits:

- o Operating: -20 to 55 degrees C (-4 to 131 degrees F).
- o Storage: -40 to 75 degrees C (-40 to 167 degrees F).

There are no electrical specifications, as the PMS obtains all of its operating power from the HP-75.

#### LIMITED ONE-YEAR WARRANTY

##### What We Will Do

The HP 82713A Plug-In Module Simulator is warranted by Hewlett-Packard against defects in materials and workmanship for one year from the date of original purchase. If you sell your unit or give it as a gift, the warranty is automatically transferred to the new owner and remains in effect for the original one-year period. During the warranty period, we will repair or, at our option, replace at no charge a product that proves to be defective, provided you return the product, shipping prepaid, to a Hewlett-Packard service center.

## What Is Not Covered

This warranty does not apply if the product has been damaged by accident or misuse or as a result of service or modification by other than an authorized Hewlett-Packard service center.

No other express warranty is given. The repair or replacement of a product is your exclusive remedy. ANY OTHER IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE ONE-YEAR DURATION OF THIS WRITTEN WARRANTY. Some states, provinces, or countries do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. IN NO EVENT SHALL HEWLETT-PACKARD COMPANY BE LIABLE FOR CONSEQUENTIAL DAMAGES. Some states, provinces, or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state, province to province, or country to country.

## Warranty for Consumer Transactions in the United Kingdom

This warranty shall not apply to consumer transactions and shall not affect the statutory rights of a consumer. In relation to such transactions, the rights and obligations of Seller and Buyer shall be determined by statute.

## Obligation To Make Changes

Products are sold on the basis of specifications applicable at the time of manufacture. Hewlett-Packard shall have no obligation to modify or update products once sold.

## Warranty Information

If you have any questions concerning this warranty, please contact an authorized Hewlett-Packard sales and service office. Should you be unable to contact them, please contact:

- o In the United States:

Hewlett-Packard  
Corvallis Division  
1000 N.E. Circle Blvd.  
Corvallis, OR 97330  
Telephone: (503) 758-1010  
Toll-Free Number: (800) 547-3400 (except in  
Oregon, Hawaii, and Alaska)

- o In Europe:

Hewlett-Packard S.A.  
7, rue du Bois-du-Lan  
P.O.Box  
CH-1217 Meyrin 2  
Geneva  
Switzerland  
Telephone: (022) 83 81 11

Note: Do not send units to this address for repair.

- o In other countries:

Hewlett-Packard Intercontinental  
3495 Deer Creek Road  
Palo Alto, California 94304  
U.S.A.  
Telephone: (415) 857-1501

Note: Do not send units to this address for repair.

## SERVICE

Hewlett-Packard maintains service centers in most major countries throughout the world. You may have your unit repaired at a Hewlett-Packard service center any time it needs service, whether the unit is under warranty or not. There is a charge for repairs after the one-year warranty period.

Hewlett-Packard products are normally repaired and reshipped within five (5) working days of receipt at any service center. This is an average time and could possibly vary depending upon the time of year and work load at the service center. The total time you are without your unit will depend largely on the shipping time.

### Obtaining Repair Service in the United States

The Hewlett-Packard United States Service Center for the HP 82713A Plug-In Module Simulator is located in Corvallis, Oregon.

Hewlett-Packard Company  
Corvallis Division Service Department  
P.O.Box 999/1000 N.E. Circle Blvd.  
Corvallis, Oregon 97330, U.S.A.  
Telephone: (503) 757-2000



## Obtaining Repair Service in Europe

Service centers are maintained at the following locations. For countries not listed, contact the dealer where you purchased your unit.

### Austria

HEWLETT-PACKARD GmbH  
Kleinrechner-Service  
Wagramerstrasse-Lieblgasse 1  
A-1220 WIEN  
Telephone: (0222) 23 65 11

### Belgium

HEWLETT-PACKARD BELGIUM SA/NV  
Woluwedal 100  
B-1200 BRUSSELS  
Telephone: (02) 762 32 00

### Denmark

HEWLETT-PACKARD A/S  
Datavej 52  
DK-3460 BIRKEROD (Copenhagen)  
Telephone: (02) 81 66 40

### Eastern Europe

Refer to the address listed under Austria.

### Finland

HEWLETT-PACKARD OY  
Revontulentie 7  
SF-02100 ESPOO 10 (Helsinki)  
Telephone: (90) 455 02 11

### France

HEWLETT-PACKARD FRANCE  
Division Informatique  
Personnelle  
S.A.V. Calculateurs de poche  
F-91947 Les Ulis Cedex  
Telephone: (6) 907 78 25

### Germany

HEWLETT-PACKARD GmbH  
Kleinrechner-Service  
Vertriebszentrale  
Berner Strasse 117  
Postfach 560 140  
D-6000 FRANKFURT 56  
Telephone: (611) 50041

### ITALY

HEWLETT-PACKARD ITALIANA  
S.P.A.  
Cassella postale 3645  
(Milano)  
Via G. DiVittorio, 9  
I-20063 CERNUSCO  
SUL NAVIGLIO (Milan)  
Telephone: (2) 90 36 91



## Netherlands

HEWLETT-PACKARD NEDERLAND B.V.  
Van Heuven Goedhartlaan 121  
N-1181 KK AMSTELVEEN (Amsterdam)  
P.O. Box 667  
Telephone: (020) 472021

## Norway

HEWLETT-PACKARD NORGE A/S  
P.O.Box 34  
Oesterndalen 18  
N-1345 OESTERAAS (Oslo)  
Telephone: (2) 17 11 80

## Spain

HEWLETT-PACKARD ESPANOLA S.A.  
Calle Jerez 3  
E-MADRID 16  
Telephone: (1) 458 2600

## Sweden

HEWLETT-PACKARD SVERIGE AB  
Skalholtsgatan 9, Kista  
Box 19  
S-163 93 SPANGA  
Telephone:(08) 750 20 00

## Switzerland

HEWLETT-PACKARD (SCHWEIZ)  
AG  
Kleinrechner-Service  
Allmend 2  
CH-8967 WIDEN  
Telephone: (057) 31 21 11

## United Kingdom

HEWLETT-PACKARD Ltd  
King Street Lane  
GB-Winnersh, Wokingham  
BERKSHIRE RG11 5AR  
Telephone: (734) 784 774

## International Service Information

Not all Hewlett-Packard service centers offer service for all models of HP products. However, if you bought your product from an authorized Hewlett-Packard dealer, you can be sure that service is available in the country in which you bought it.

If you happen to be out of the country where you bought your unit, you can contact the local Hewlett-Packard service center to see if service is available for it. If service is unavailable, please ship the unit to the address listed above under Obtaining Repair Service in the United States. A list of service centers for other countries can be obtained by writing to that address.

All shipping, reimportation arrangements, and custom costs are your responsibility.

### Service Repair Charge

There is a standard repair charge for out-of-warranty repairs. The repair charges include all labor and materials. In the United States, the full charge is subject to the customer's local sales tax. In European countries, the full charge is subject to Value Added Tax (VAT) and similar taxes wherever applicable. All such taxes will appear as separate items on invoiced amounts

Products damaged by accident or misuse are not covered by the fixed repair charges. In these situations, repair charges will be individually determined based on time and material.

### Service Warranty

Any out-of-warranty repairs are warranted against defects in materials and workmanship for a period of 90 days from date of service.

### Shipping Instructions

Should your unit require service, return it with the following items:

- o A completed Service Card, including a description of the problem and system setup when the problem occurred.
- o A sales receipt or other documentary proof of purchase date if the one-year warranty has not expired.

The product, the Service Card, a brief description of the problem and system configuration, and (if required) the proof of purchase date should be packaged in the original shipping case or other adequate protective packaging to prevent in-transit damage. Such damage is not covered by the one year limited warranty; Hewlett-Packard suggests that you insure the shipment to the service center. The packaged unit should be shipped to the nearest Hewlett-Packard designated collection point or service center. Contact your dealer directly for assistance. (If you are not in the country where you originally purchased the unit, refer to International Service Information above.)

Whether the unit is under warranty or not, it is your responsibility to pay shipping charges for delivery to the Hewlett-Packard service center.

After warranty repairs are completed, the service center returns the unit with the postage prepaid. On out-of-warranty repairs in the United States



and some countries, the unit is returned C.O.D. (covering shipping costs and the service charge).

#### Further Information

Service contracts are not available. Circuitry and designs are proprietary to Hewlett-Packard, and service manuals are not available to customers.

Should other problems or questions arise regarding repairs, please call your nearest Hewlett-Packard service center.

#### Potential for Radio/Television Interference (for U.S.A. Only)

The HP 82713A Plug-In Module Simulator generates and uses radio frequency energy and, if not installed properly (that is, in strict accordance with the instructions in this manual), may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a class A computing device in accordance with the specifications of Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a commercial environment. Operation of this equipment in a residential area may cause interference, which can be determined by turning the equipment off and on. If this equipment does cause interference to radio and television reception, you are encouraged to try to correct the interference by one or more of the following measures:

- o Reorient the receiving antenna.
- o Relocate the PMS with respect to the receiver.
- o Move the PMS away from the receiver.
- o If the HP-75 is being powered by an ac adapter, plug it into a different outlet so that the PMS and the receiver are on different branch circuits.

If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find the following booklet, prepared by the Federal Communications Commission, helpful: How to Identify and Resolve Radio-TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock Number 004-000-00345-4.

## Appendix C

### Error Conditions

Any applicable HP-75 error conditions may be encountered while operating the PMS. They are announced and displayed exactly as they are when using the HP-75 alone. Some of the commonly encountered HP-75 errors are listed below. For errors not listed, refer to the HP-75 Owner's Manual. Errors above 100 are unique to the PMS.

System Error	
Number	Message and Condition
16	{not enough memory}  o A file or program requires too much memory.

File and Device Errors	
Number	Message and Condition
62	{file not found}  o The specified file does not exist in memory or on a mass storage medium. Enter CLEAR VARS.
63	{invalid filespec}  o Invalid name for a file in memory. Restricted to one to eight characters--first character a letter or period, remaining characters letters and/or digits.
64	{duplicate name}  o Duplicate filename. A file already exists in memory or on a mass storage medium by that name.
68	{wrong file type}  o Attempting to copy a file to a private file; causes a warning and allows a non-private copy to be made.



File and Device Errors (Continued)	
Number	Message and Condition
	<ul style="list-style-type: none"> <li>o Attempting to purge a LEX file from the PMS.</li> <li>o Attempting to copy a LEX file to the PMS not in the BUILD command.</li> <li>o Attempting to BUILD a PMS bank with a non-LEX filespec.</li> </ul>

Syntax Error	
Number	Message and Condition
89	{bad parameter} <ul style="list-style-type: none"> <li>o Reported by the BUILD, CHECKSUM, ROMAVAIL, ROMID, and PRIVATE commands when an invalid PMS bank address is used. Also reported for the BUILD command when an invalid ROM ID number is used.</li> </ul>

PMS Errors	
Number	Message and Condition
230	{device not present} <ul style="list-style-type: none"> <li>o No PMS is connected to the HP-75.</li> <li>o The PMS connector is not seated in the port properly.</li> </ul>
231	{bank not initialized} <ul style="list-style-type: none"> <li>o The specified bank was not initialized with the BUILD command prior to operation.</li> </ul>
232	{invalid checksum} <ul style="list-style-type: none"> <li>o If reported at turn on, it indicates that the bank was found to be in error. When reported, the bank will be reinitialized and all data previously stored in the bank will be lost.</li> </ul>

# PMS Errors (Continued)

Number	Message and Condition
	Possible causes: <ul style="list-style-type: none"><li>o Data destruction</li><li>o Equipment malfunction</li><li>o Bad battery</li></ul>
233	{bank full} <ul style="list-style-type: none"><li>o The bank does not have enough room to accept the new information. Files may require more room in the bank than they do in the HP-75 memory.</li><li>o An attempt was made to load more than eight files.</li></ul>
234	{device not allowed} <ul style="list-style-type: none"><li>o All PMS copy operations must take place between the HP-75 memory and a PMS bank. Data can not be copied from a destination device, such as a tape, directly into the PMS.</li></ul>
235	{invalid file} <ul style="list-style-type: none"><li>o If reported at initialization with a LEX file specified, the LEX file is not in the proper format.</li></ul>
236	{file active} <ul style="list-style-type: none"><li>o An attempt was made to purge from a PMS bank a file which was currently running. Enter CLEAR VARS.</li></ul>
237	{bank not empty} <ul style="list-style-type: none"><li>o An attempt was made to copy a ROM file into a PMS bank which has other files present.</li></ul>
238	{duplicate romid} <ul style="list-style-type: none"><li>o This error reported at turn on indicates that a ROM ID assigned to a PMS bank is the same as that of a LEX file, a permanent plug-in module, or another PMS bank. If reported by BUILD or COPY, the command is not performed.</li></ul>

Appendix D  
Syntax Summary

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Parameter Syntax

**device** → **:** **ROM** **letter A-F** →

**romid** → **numeric constant** →

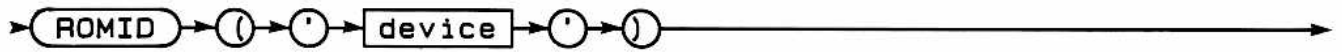
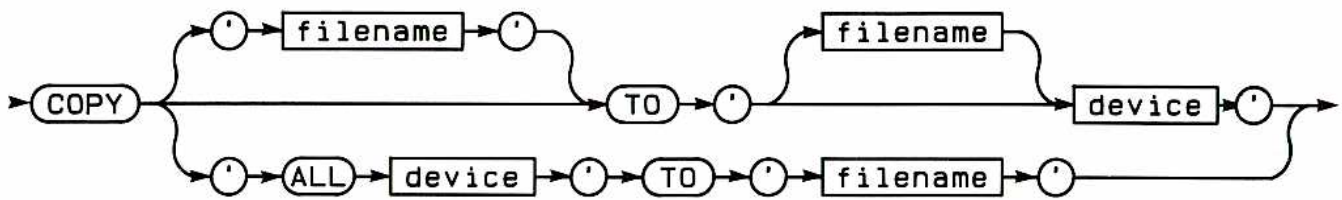
A construct of the form **○** **□** **○** is a string expression.

Command Syntax

→ **BUILD** **'** **device** **'** **,** **romid** **,** **'** **lexname** **'** →

→ **CAT** **'** **filename** **'** **device** **'** →

→ **CHECKSUM** **(** **'** **device** **'** **)** →





## Appendix E

### Operational Limitations

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If you are using your PMS as a plug-in module, or if you are using a permanent plug-in module which you have had Hewlett-Packard make for you, you should be aware of certain operational limitations.

The following operations cannot be used on a file in a plug-in module:

ASSIGN #	PURGE
CAT	READ #
EDIT	RENAME
LIST	Single Step
PLIST	TRANSFORM
PRINT #	

The command MARGIN must not be used in a program in the PMS or in a permanent plug-in module. If it is used and the program is run, serious operating problems could result, such as the loss of all files in the HP-75.

Use of the command VER\$ in a program in the PMS or a permanent plug-in module could cause unpredictable results when the program is run. Its use is not recommended.

## Glossary

device	A string expression containing one of the six ROM addresses, ROMA, ROMB, ... ROMF. (The port addresses read alphabetically from left to right.)
filename	A string expression containing an HP-75 filename.
filename:device	A string expression containing a filename and one of the ROM addresses listed above.
romid	A numeric expression which identifies a ROM bank in the PMS.
lexname	A string expression containing the name of a language extension file.
source file	A file which is being moved from one memory location to another.
destination file	The file to which a source file is being moved.

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Owner's Manual



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